

IN THE UNITED STATES DISTRICT COURT FOR THE
MIDDLE DISTRICT OF TENNESSEE
NASHVILLE DIVISION

SIERRA CLUB,)
)
 Plaintiff,) NO. 3:22-cv-01054
)
 v.) JUDGE CAMPBELL
)
 TENNESSEE VALLEY AUTHORITY,) MAGISTRATE JUDGE HOLMES
)
 Defendant.)

MEMORANDUM

Pending before the Court is Plaintiff Sierra Club’s motion for summary judgment (Doc. No. 53), and a cross motion for summary judgment filed by Defendant Tennessee Valley Authority (“TVA”) (Doc. No. 51). The motions are fully briefed and ripe for consideration. (Doc. Nos. 54, 55, 57, 58). For the reasons discussed below, TVA’s motion (Doc. No. 51) will be **GRANTED** and Sierra Club’s motion (Doc. No. 53) will be **DENIED**.

I. FACTUAL AND PROCEDURAL BACKGROUND¹

A. The TVA

TVA is an executive branch corporate agency created by and existing pursuant to the TVA Act of 1933, 16 U.S.C. §§ 831 to 831ee (“TVA Act”). TVA, which operates the nation’s largest public power system, sells electricity to local power companies in seven states. (*See* AR 643). TVA operates four coal-fired plants, three nuclear plants, 29 hydroelectric plants, one pumped-storage hydroelectric plant, nine natural gas combustion turbine (“CT”) gas plants, eight natural

¹ The facts are drawn entirely from the Administrative Record of TVA’s decision, which was filed manually. (*See* Doc. No. 46). For ease of reference, the Court cites to the Administrative Record as “AR [page number].” The page number refers to the AR page number, not the page number of the original document.

gas combined cycle (“CC”) plants, one diesel generator site, and fourteen solar energy sites.² (AR 643). One of TVA’s “primary objectives” is to supply low-cost, reliable electricity “at rates as low as are feasible.” 16 U.S.C. 831n-4(f), (h); 831m-1(b)(1). The TVA Act, as amended by the Energy Policy Act of 1992, requires the agency to conduct a “least-cost planning program” in which it must implement a “planning and selection process for new energy resources which evaluates the full range of existing and incremental resources (including new power supplies, energy conservation and efficiency, and renewable energy resources) in order to provide adequate and reliable service to electric customers of the Tennessee Valley Authority at the lowest system cost.” 16 U.S.C. § 831m-1(a), (b)(1). This process must consider, among other things, “necessary features for system operation, including diversity, reliability, dispatchability, and other factors of risk.” 16 U.S.C. § 831m-1(b)(2)(A).

B. National Environmental Policy Act

The National Environmental Policy Act (“NEPA”) requires federal agencies to consider the reasonably foreseeable environmental effects of proposed “major Federal actions significantly affecting the quality of the human environment” before making decisions.³ 42 U.S.C. § 4332(C);

² At the time of the filing of the motions for summary judgment in October 2023, TVA stated that there were five coal-fired plants and that it had announced plans to retire additional coal-fired plants. (Doc. No. 52 at 2, n.2 (citing Our Power System: Coal, TVA, available at <https://www.tva.com/energy/our-power-system/coal>)). Since the filing of the motions for summary judgment, TVA has retired one additional coal-fired plant. (See <https://www.tva.com/energy/our-power-system/coal> (last visited Sept. 27, 2024)).

³ The Council on Environmental Quality issues regulations implementing NEPA, with which all federal agencies must comply. The regulations remained largely unchanged between 1978 and 2020, but they have been amended three times in recent years. See Notice of Proposed Rulemaking for National Environmental Policy Act Implementing Regulations Revisions Phase 2, 88 Fed. Reg. 49,924, 49,927–29 (July 31, 2023) (describing this history). During these rulemakings, some longstanding regulatory requirements have been renumbered. The parties agree that the regulations applicable here are those in effect in July 2022, when TVA issued the Environmental Assessment and finding of no significant impact for the Aero CTs Project. (See Sierra Club Br., Doc. No. 58-1 at PageID # 895, n.2; TVA Br., Doc. No. 52 at 9, n.9).

Monsanto Co. v. Geerston Seed Farms, 561 U.S. 139, 145 (2010). NEPA has the “twin aims” of requiring federal agencies “to consider every significant aspect of the environmental impact of a proposed action” and “ensur[ing] that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.” *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983) (internal citation omitted); *see also, Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989) (noting that the process guarantees that the environmental impacts of a decision “will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision”).

To this end, “NEPA employs a ‘set of action-forcing’ procedures that require agencies to take a ‘hard look at environmental consequences.’” *Ky. Riverkeeper, Inc. v. Rowlette*, 714 F.3d 402, 407 (6th Cir. 2013) (quoting *Robertson*, 490 U.S. at 350). “[W]hile agencies must follow a certain process to evaluate the environmental impact of a project, NEPA does not require any substantive results.” *Oak Ridge Envir. Peace Alliance v. Perry*, 412 F. Supp. 3d 786, 804 (E.D. Tenn. 2019) (citing *Robertson*, 490 U.S. at 350). “[E]ven agency action with adverse environmental effects can be NEPA-compliant so long as the agency has considered those effects and determined that competing policy values outweigh those costs.” *Oak Ridge*, 412 F. Supp. 3d at 804 (citing *Kentuckians for the Commonwealth v. U.S. Army Corps of Eng’rs*, 746 F.3d 698, 706 (6th Cir. 2014)). NEPA’s mandate is “essentially procedural.” *Vermont Yankee Nuclear Power Corp. v. Natural Res. Def. Council, Inc.*, 435 U.S. 519, 558 (1978).

NEPA requires that an environmental impact statement (“EIS”) be prepared for any “major Federal action [] significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C); *Citizens Against Pellissippi Parkway Extension, Inc. v. Mineta*, 375 F.3d 412, 414 (6th Cir. 2004). But not every major Federal action requires an EIS. NEPA allows agencies to conduct

a shorter environmental assessment (“EA”) to determine whether the project impacts will be “significant” and therefore require an EIS. *Monsanto*, 561 U.S. at 145. An EA is a “rough cut, low-budget environmental impact statement designed to show whether a full-fledged environmental impact statement—which is very costly and time-consuming to prepare—is necessary.” *Anglers of the Au Sable v. U.S. Forest Serv.*, 565 F. Supp. 2d 812, 824 (E.D. Mich. 2008) (quoting *La. Crawfish Prod. Ass’n-West v. Rowan*, 463 F.3d 352, 356 (5th Cir. 2006)). If an agency conducts an EA and concludes that project impacts will not be significant, it may issue a Finding of No Significant Impact (“FONSI”) and forego the preparation of an EIS. 42 U.S.C. § 4336(b)(2); *Monsanto Co.*, 561 U.S. at 145; *Pellissippi Parkway*, 375 F.3d at 414 (“After analyzing the EA, the agency decides whether to prepare an EIS or issue a finding of no significant impact.”). Agencies have “considerable discretion” in determining whether an EA should lead to the preparation of an EIS. *Ky. Coal Ass’n v. Tenn. Valley Auth.*, 804 F.3d 799, 804 (6th Cir. 2015).

EAs may be “tiered” from broader EISs in order to “eliminate repetitive discussions …, focus on the actual issues ripe for decision, and exclude from consideration issues already decided or not yet ripe at each level of environmental review.” 40 C.F.R. § 1501.11 (2020). “Tiering” in the context of NEPA is a process that allows an agency to go from a broader NEPA review to a more site-specific NEPA review without readdressing issues or repeating information and analyses in the broader review. *Id.* One of the most common scenarios for a tiered approach to NEPA is when an agency develops an EIS or EA for a program, policy, or plan, and then “prepares a subsequent [EIS] or [EA] on an action included within the entire program or policy (such as a project- or site-specific action).” 40 C.F.R. § 1501.11(b) (2020); *see also id.* § 1501.11(c) (describing when tiering is appropriate).

C. The Integrated Resource Plan

During an eighteen-month process in 2018 and 2019, TVA prepared an Integrated Resource Plan (the “2019 IRP” or “IRP”) that was intended to shape how TVA achieves its missions to “provide low-cost, reliable and clean electricity; support environmental stewardship; and foster economic development in the Tennessee Valley for the next 20 years.”⁴ (AR 618). The final IRP is a 760-page comprehensive document developed with input from stakeholder groups and members of the public, including Sierra Club. (AR 618). The 2019 IRP evaluated the merits of various energy generation sources—including coal, hydroelectric, nuclear, wind, storage, gas combustion turbines (“CTs”), gas combined cycle (“CCs”), and solar—against projections of future energy demands and considered several broad strategy alternatives within the least-cost planning framework. (AR 621–24, 677-90).

TVA ultimately selected a Target Power Supply Mix (“Target Mix”) as its preferred strategy because it would provide a diverse energy portfolio and the flexibility to make energy resource decisions consistent with its least-cost planning obligations over the next 20 years. 84 Fed. Reg. 48987, 48988 (Sept. 17, 2019). The 20-year plan includes flexibility to allow for future development such as changes in demand, natural gas prices, regulatory requirements, and emerging technologies (*see* AR 623, 754). It provides more specific direction over the first 10-year period (*see* AR 621, 754). As part of the Target Mix, TVA identified its gas fleet, including CTs, as “essential for maintaining system reliability requirements,” meeting peak power demand, and providing the flexibility needed to integrate renewable energy systemwide. (AR 621, 671, 741-

⁴ The 2019 IRP states that the general planning direction is expressed over a 20-year period, which provides more specific direction over the first 10-year period. (AR 621).

42, 753). The Target Mix calls for the system-wide addition by 2028 of up to 5,200 megawatts of CTs, and by 2038 of up to 8,600 megawatts of CTs.⁵ (AR 621, 671).

As part of the 2019 IRP, TVA prepared an EIS. The EIS addressed the environmental impact of the Target Mix and five alternative strategies, including a no-action alternative. (AR 945-957 (describing alternative strategies)). One of these strategies was to “Promote Renewables.” Under this strategy, renewables account for twenty percent of the capacity portfolio and the need for gas capacity additions is reduced. (AR 953). In discussing the Target Mix, the EIS noted that future CT needs will be driven in part by solar penetration “that tends to drive CT instead of CC additions.” (AR 956). The EIS discussed the anticipated environmental impacts of natural gas facilities operated by TVA, including both existing and potential new facilities. (AR 1075-77).

D. The CT Modernization Study

One of the recommendations in the 2019 IRP was that TVA evaluate the end-of-life dates for aging fossil units. (AR 621-22, 758). To implement this recommendation, in 2019, TVA completed a CT Modernization Study, which recommended retiring and replacing the oldest combustion turbine units at the TVA facility in Johnsonville, Tennessee (the “Johnsonville Reservation”), and building 500 to 600 megawatts of highly efficient new Aero CT units which TVA determined would “enhance system flexibility and integrate renewable energy capacity from various resources, such as solar and wind; and provide dispatch capacity, *i.e.*, the ability to power output on demand.” (Doc. No. 52 at PageID # 849 (citing AR 1376-90)). Accordingly, in 2021,

⁵ In total, the Target Mix calls for the systemwide addition, by 2038, of up to 500 megawatts of demand response and 2,200 megawatts of energy efficiency (demand-side options); 4,200 megawatts of wind; 5,300 megawatts of storage; 8,600 megawatts of CTs; 9,800 megawatts of CCs; and 14,000 megawatts of solar. (AR 754-56).

TVA decided to retire a majority of the older simple-cycle CT units in Johnsonville and replace that capacity with facilities in Kentucky and Alabama.⁶ (Doc. 53-1 at PageID # 891; AR 171-72).

E. The Aero CTs Project

In 2022, TVA proposed the Aero CTs Project to construct and build ten Aero CT units at TVA's facility in Johnsonville.⁷ (*See* AR 13, 169). The Aero CT units are expected to enter commercial operation in December 2024. TVA states that the Aero CTs will “enhance system flexibility, integrate increasing renewable capacity, and provide dispatchable capacity” and “improve the system’s ability to effectively integrate generation from variable resources, such as solar and wind.” (AR 171).

TVA prepared an EA for the Aero CTs Project to analyze the potential environmental, cultural, and socioeconomic impacts of the proposed project. (AR 173). The EA defines the purpose and need of the project as “maintain[ing] a reliable peaking fleet and … enhanc[ing] system flexibility by facilitating the integration of intermittent renewable resources.” (AR 171). The purpose and need statement explained that the CT Modernization Study recommended TVA retire a number of older CT units and add approximately 500-650 megawatts of new Aero CTs in the “near-term,” and that “[i]nvestments in adding to Aero CTs to the peaking fleet aligns with the direction in the IRP, which recommended enhancing system flexibility to integrate renewables.” (AR 170-71). The EA explained that “[a]s the amount of solar general of the TVA generation portfolio continues to increase, flexibility of the remainder of the fleet becomes even more

⁶ At the time of the CT Modernization Study, Johnsonville housed twenty simple-cycle CT units. (AR 2073). The sixteen “most challenged” units were replaced by new CT units at TVA’s Paradise and Colbert facilities. (AR 171).

⁷ Aero CTs are different from simple-cycle CTs because they provide high cycling capability and very fast start up (AR 170).

important” so that when solar generation is reduced, for example because of cloud cover, other generating units can supply power to customers. (AR 171).

The EA analyzed two alternatives: (1) a no-action alternative, under which TVA would not execute the Aero CTs Project; and (2) the Aero CTs Project. (AR 177-84). TVA considered, but did not evaluate, a proposed alternative of a combination of renewable energy and storage because it determined that combination could not “provide the same magnitude of reliable and cost-effective energy year-round as is possible with CTs in combination with renewables.” (AR 177). TVA determined that the no action alternative “would not align with IRP recommendations or the TVA Strategic Intent and Guiding Principles, which focus on energy supply and decarbonization initiatives” and was considered as a comparison baseline. (AR 178).

The EA then addressed the potential environmental consequences of the Aero CTs Project and the no action alternative in twenty-one areas.⁸ (AR 187-270). It stated that the Project would result in increases in local emissions, but the increases would not exceed permit limits or air quality standards. (*Id.* 198). The EA explained that emissions of carbon monoxide and NO_x would be minimized through using certain pollution controls and that SO₂ and CO₂ emissions would be minimized through pipeline quality natural gas and installing high efficiency CT units. (AR 180, 196-198). The EA also explained that the Aero CTs units would operate only as-needed to ensure reliability at times of peak demand. (AR 196).

The EA stated that operation of the Aero CTs Project would result in a total greenhouse gas emissions increase of 1,141,195 tons per year. (AR 203). The EA included a “proxy analysis” that determined that the potential increase in greenhouse gas emissions would represent

⁸ The areas include: air quality, climate change and greenhouse gas, geology and soils, groundwater, surface water, wetlands, aquatic ecology, vegetation, wildlife, threatened and endangered species, visual resources, cultural and historic resources, transportation, natural areas, noise, solid and hazardous waste, socioeconomics, and public health and safety. (AR 187-270).

approximately 1.1 percent of total statewide emissions; .02 percent of total US emissions; and .002 percent of the estimated total global emissions for 2019 and “[a]s such, the operation of the proposed Aero CTs and the emergency generator would represent a less than significant contribution to state, national, and global GHG emissions.” (*Id.*). The EA explained that “the evaluation of potential emissions is highly conservative in that the proposed Aero CTs are peaking units that are intended to operate intermittently during short-duration, high-demand periods” and “as described in the EIS prepared for the 2019 IRP, implementations of the IRP recommendations, including the construction of peaking units such as the proposed Aero CTs, would result in an overall reduction in GHG emissions” because “the indirect effects from the implementation of the proposed action would include enabling an overall increase in delivery of clean/renewable energy generation which contributes to an overall decrease in regional and national GHG emissions.” (*Id.* at 204).

In response to comments on the draft EA asking TVA to consider the social cost of carbon (“SSC”) metric in its assessment, TVA conducted a social cost of carbon analysis using 2 different carbon cost valuations. (AR 205-206). Although it conducted the requested analysis, the EA explained that the SSC metric “is not an appropriate measure or proxy of project-level climate change impacts and their significance under NEPA” because: “(1) there is a lack of consensus on the appropriate discount rate, which leads to significant variation in outputs, rendering those outputs unreliable; (2) the SCC tool does not measure the actual incremental impacts of an individual project due to both scale and complexity; and (3) there are no established criteria identifying the monetized values considered significant for NEPA purposes.” (AR 204-205).

F. Finding of No Significant Impact

In July 2022, TVA concluded that implementing the Aero CTs Project “would not be a major federal action significantly affecting the environment,” no environmental impact statement was required, and issued a FONSI. (AR 474). The FONSI explained that the Johnsonville Reservation had several advantages to alternative locations, including that the construction footprint would allow the Aero CT units to be built on previously disturbed land, the Johnsonville Reservation had existing natural gas infrastructure that could be utilized to support the additional proposed Aero CT units, and proximity to Middle Tennessee and Nashville offers “synchronous condensing for area grid support” (AR 467). Finally, because of the age of the Johnsonville Reservation, extensive environmental reviews have been conducted, which provides a level of confidence that there is a low potential for impacting sensitive environmental resources. (AR 468). The FONSI explained that the project area included 245 acres, and at full buildout, the Aero CT plane would occupy approximately 15 acres of that area. The FONSI explained mitigation measures and considered expected environmental impacts to the Johnsonville site and the surrounding area and determined that they would be insignificant. (AR 468-74).

Ultimately, the FONSI concluded that “[b]ased on the evaluation in the EA, TVA conclude[d] that implementing the Johnsonville Aeroderivative Combustion Turbine Project[] would not be a major federal action significantly affecting environment. Accordingly, an environmental impact statement is not required.” (AR 474).

G. Legal Action

This lawsuit arises from TVA’s decision on the Aero CTs Project. Sierra Club filed this lawsuit against TVA in December of 2022 and seeks various remedies including: (1) a declaratory judgment that the EA for the Aero CTs Project violates NEPA and that TVA’s decision to issue a

FONSI was arbitrary, capricious, and/or not in accordance with law; (2) that the EA and FONSI for the Aero CTs Project be vacated; (3) that TVA be ordered to prepare an EIS for the Aero CTs Project; (4) that further construction and operation of the Aero CTs be enjoined until TVA has complied with NEPA; and (5) an award in favor of Sierra Club for the costs of this action. Both parties moved for summary judgment.

II. STANDARD OF REVIEW

“The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). But here, where the parties seek review of an administrative proceeding, the usual rules governing summary judgment do apply. *See Oak Ridge*, 412 F. Supp.3d at 809 (standard of review on cross motions for summary judgment in NEPA case); *Tenn. Hosp. Ass’n v. Price*, No. 3:16-cv-3263, 2017 WL 2703540, at *4 (M.D. Tenn. June 21, 2017) (explaining that summary judgment is the procedural “mechanism for deciding, as a matter of law, whether the agency action is supported by the administrative record or otherwise consistent with the APA standard of review”).

Judicial review of an agency’s compliance with NEPA is governed by the Administrative Procedure Act. *Latin Ams. for Soc. & Econ. Dev. v. Adm’r of Fed. Highway Admin.*, 756 F.3d 447, 464 (6th Cir. 2014). Courts will “hold unlawful and set aside agency action” that is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706. (courts will set aside agency action taken “without observance of procedure required by law”). “In making this assessment, the court must determine whether the agency considered the relevant factors and has provided an explanation that rationally connects the data with the choice made.” *Latin Ams. for Soc. & Econ. Dev.*, 756 F.3d at 464 (citations omitted); *see also Motor Vehicle*

Mfrs. Ass'n v. State Farm Mutual Auto. Ins. Co., 463 U.S. 29, 43 (1983) (agency action is arbitrary and capricious where the agency relied on improper factors, ignored an important aspect of the problem, offered an explanation that runs counter to the evidence, and more). The Court does not substitute its judgment for an agency's but "will insist that the agency has, in fact, adequately studied the issue and taken a hard look at the environmental consequences of its decision." *Meister v. U.S. Dep't of Agriculture*, 623 F.3d 363, 377 (6th Cir. 2010) (quoting *Save Our Cumberland Mountains v. Kemphorne*, 453 F.3d 334, 339 (6th Cir. 2006)).

III. ANALYSIS

A. Standing

TVA reasserts its argument that Sierra Club lacks Article III standing, an issue that was unresolved at the time the motions for summary judgment were filed. However, the Court has since determined that Sierra Club has associational standing to bring the instant action. (See March 4, 2024 Order and Memorandum Opinion, Doc. Nos. 60, 61). TVA does not raise new factual challenges to standing in its motion for summary judgment. Accordingly, the Court's prior standing determination remains unchanged.

B. TVA's Analysis of Greenhouse Gas Emissions

Sierra Club argues that TVA failed to take a "hard look" at the quantity of the Aero CTs Project's greenhouse gas emissions because TVA: (1) compared the Aero CTs Project to an unlawful and misleading baseline; (2) disregarded the Aero CTs Project's foreseeable upstream emissions; and (3) obscured the Aero CTs Project's overall emissions by focusing solely on the rate of emissions. TVA argues it satisfied the requirements of NEPA by taking a "hard look" at the reasonably foreseeable impacts of the Aero CTs Project on climate because its qualitative and

quantitative analysis of climate impacts was reasonable and it appropriately evaluated the Aero CTs Project's impact on climate change. The Court will address the parties' arguments in turn.

1. Comparison to Baseline

“NEPA requires an agency to ‘present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.’” *Tennessee Env’t Council v. Tennessee Valley Auth.*, 32 F. Supp. 3d 876, 886 (E.D. Tenn. 2014) (internal citation omitted). As part of this assessment, “agencies are required to ‘include the alternative of no action.’” *Id.* (internal citation omitted). “No-action alternatives” represent “the environmental status quo and should be formulated to provide the environmental baseline from which the proposed action and other alternatives can be assessed even when TVA is legally required to take action.” 18 C.F.R. §§ 1318.400(e) and 1318.302(b). “For proposed changes to existing programs or plans, continuation of the existing program or plan and associated environmental impacts should be considered the no-action alternative.” 18 C.F.R. § 1318.400(e). The consideration of a “no action alternative” is intended to “compare the potential impacts of the proposed major federal action to the known impacts of maintaining the status quo. In other words, the current level of activity is used as a benchmark.” *Tennessee Env’t Council*, 32 F. Supp. 3d 876 at 886 (internal citation omitted).

Sierra Club first contends TVA mischaracterized the no action alternative by “assum[ing] that an equivalent amount of generation supplied by the proposed Aero CTs at Johnsonville would instead have to come from TVA’s existing fleet of frame-type, simple-cycle CTs” stating that this “provides a comparison of the efficiency gains the simple-cycle CT fleet will achieve with the addition of the new, highly efficient Aero CTs in the proposed action.” (Doc. No. 53-1 at PageID # 900 (citing AR 205)). Sierra Club argues that TVA’s proposed no action alternative amounts to

“a counterfactual world where it increases the level of activity elsewhere” and “[b]ased on its mischaracterization of the no-action alternative, the EA makes the implausible claim that building the Aero CTs Project—a new power plant that adds 550 megawatts of new capacity to TVA’s fleet—will cause less carbon dioxide pollution than doing nothing.” (Doc. No. 53-1 at PageID # 901).

TVA responds that it is necessary and appropriate to consider actions that are likely to occur if the proposed project was not implemented. (Doc. No. 55 at PageID # 980). TVA argues that the EA does not provide that the no action alternative would increase output at other TVA power plants and that the EA “consistently maintained that without the proposed project, TVA’s existing system would continue to use less reliable and less flexible peaking generation units while TVA works to integrate renewables systemwide” and that in the absence of the Aero CTs Project, “an equivalent amount of generation supplied by the proposed Aero CTs at Johnsonville would instead have to come from TVA’s existing fleet of frame-type, simple-cycle CTs.” (Doc. No. 55 at PageID # 982 (citing AR 177, 202, 205)).

TVA states that it analyzed the no action alternative for each resource, discussed the impact of greenhouse gas emissions from the Aero CTs Project using the proxy and social cost of carbon methodologies in the context of the no action alternative, and concluded that “there would be no short-term, temporary construction-related GHG emissions or operational changes in GHG emissions” and “[a]ny benefits associated with the operation of newer, more efficient Aero CTs that also provide flexibility, thereby reducing the burden on the remainder of the system to integrate renewable resources, would not be realized under this alternative.” (Doc. No. 55 at PageID # 981; AR Doc. 2 at 202). The EA also explained that “the No-Action Alternative would have the higher carbon cost over the 20-year period and the higher Net Present Value in 2021

dollars, regardless of the carbon cost valuation used.” (Doc. No. 55 at PageID # 981 (citing AR 205)).

Sierra Club’s argument that the EA’s assessment of the no action alternative is “something markedly different[] from the status quo” and therefore faulty and misleading is unavailing. (Doc. No. 53-1 at PageID # 900). The 2019 IRP and EIS make clear that TVA developed a long-term strategy for meeting electricity demands, which culminated in the proposed Aero CTs Project. If TVA were to implement the no action alternative and not build the new Aero CTs, it would have to meet future demands from its existing resources. In considering the no action alternative, the status quo is that the Aero CTs project is not completed, not that surrounding variables, such as predicted energy consumption, remain at current levels. Indeed, if TVA ignored the predicted increased energy demand as Sierra Club argues it should have, the resulting assessment would ignore foreseeable consequences of inaction and fail to paint a realistic picture of the environmental impact of the no action alternative. *See Tennessee Env’t Council*, 32 F. Supp. 3d 876, 887 (E.D. Tenn. 2014) (noting that the Council on Environmental Quality (“CEQ”) requires evaluation of “known consequences of the ‘no action’ alternative” and “[w]hen a choice of ‘no action’ by the agency would result in predictable actions by others, this consequence of the ‘no action’ alternative should be included in the analysis”); *see also, Communities, Inc. v. Busey*, 956 F.2d 619, 626 (6th Cir. 1992) (finding that, when considering the no action alternative to proposed agency action, it was not unreasonable for the agency to consider that with or without the federal government taking its proposed action, local governments still planned on demolishing the local area).

The Court finds that TVA’s consideration of other events that may occur if the Aero CTs Project does not occur constitutes the type of “predictable actions” appropriate in the no action alternative analysis and is not arbitrary or capricious.

2. Upstream Emissions

Sierra Club next contends that TVA arbitrarily refused to quantify or account for the methane emissions that the Aero CTs Project would cause upstream in the gas supply chain and that this refusal “shirked TVA’s hard look obligation under NEPA and ignored an important aspect of the problem.” (Doc. No. 53-1 at PageID # 902 (citing AR 5000 (CEQ 2016 Climate Guidance)))

NEPA requires a federal agency to consider direct and indirect environmental impacts of a proposed action. *Dep’t of Transp. v. Public Citizen*, 541 U.S. 752, 764 (2004); *see also* 40 C.F.R. § 1508.1(g)(2) (2022). “Direct effects” are “caused by the action and occur at the same time and place” while “indirect effects” are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” *Public Citizen*, 541 U.S. at 764. However, a “‘but for’ causal relationship is insufficient to make an agency responsible for a particular effect under NEPA and the relevant regulations.” *Id.* In *Public Citizen*, the Supreme Court explained that the agency is required to consider effects that are reasonably foreseeable, *i.e.*, “sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision,” and proximately caused by the action. *Id.* at 766-67. This means that “where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect” and is not required to address the effect in its NEPA review. 541 U.S. at 770; *see also*, *Kentuckians for the Commonwealth v. U.S. Army Corps of Eng’rs*, 746 F.3d 698, 710 (6th Cir. 2014) (“[A]gencies may reasonably limit

their NEPA review to only those effects proximately caused by the actions over which they have regulatory responsibility”)).

Sierra Club argues TVA refused to quantify the Aero CTs Project’s upstream methane emissions and their climate impacts and instead claimed that “[b]ecause no new pipeline infrastructure will be built and the maximum capacity of the existing line would not be affected, and due to the retirement of some older combustion turbine units, the upstream emissions are unlikely to be affected.” (Doc. No. 53-1 at PageID # 903 (citing AR 303)). Sierra Club contends that TVA cannot rely on the retirement of the older CT units to offset upstream emissions because the retirement decision had already been made, and TVA must therefore use the decreased emissions resulting from the retirement as the baseline and consider the effects of the Aero CTs Project from that baseline. (Doc. No. 53-1 at PageID # 903-05).

TVA argues it was not required to include such emissions in its analysis of indirect effects of the Project because it has no control over upstream emissions in the gas pipeline. (Doc. No. 55 at PageID # 973-74). TVA also argues that emissions from upstream gas production are not reasonably foreseeable effects of the Aero CTs Project because predicting the effects would be speculative. Finally, TVA contends that even if upstream emissions were considered indirect effects of the Aero CTs Project, it determined that upstream emissions were unlikely to be affected since there would be no change in the existing natural gas pipeline infrastructure as a result of the Aero CTs Project and the Aero CT units would not increase the maximum capacity of the existing line. (Doc. No. 55 at PageID # 976).

“[T]he inquiry here is *not* whether the [agency] expended *all possible resources* to assess the potential ‘effects’ of [the proposed project]; it is whether the agency ‘*adequately* studied the issue and [took] a hard look at the environmental consequences of its decision.’” *FreshWater*

Accountability Project v. United States Army Corps of Engineers, 629 F. Supp. 3d 761, 774 (S.D. Ohio 2022) (emphasis in original) (internal citations omitted). Here, TVA determined that the Aero CTs Project utilized existing natural gas pipeline infrastructure and did not affect the maximum capacity of that infrastructure, and thus, that upstream emissions are unlikely to be affected and any efforts to predict such emissions would be speculative. (AR 303-04). TVA also explained that it is taking efforts to reduce methane leakage throughout the gas supply chain, including by entering “a two-year pilot contract to purchase responsibly sourced gas, allowing [TVA] to partner to explore new technologies to support further methane emissions reductions.” (AR 304).

The Administrative Record demonstrates that TVA analyzed the potential environmental impacts on methane emission in the gas supply chain from the Aero CTs Project and concluded that the upstream emissions were unlikely to be affected because it was using existing natural gas pipeline infrastructure and did not affect the maximum capacity of that infrastructure; and because it had decided to retire older units. (AR 303). While Sierra Club disputes TVA’s conclusion, the Court finds that TVA adequately analyzed the potential impacts on upstream emissions from the Aero CTs Project and took a “hard look” at the potential environmental impacts of the project. Sierra Club has not met its burden of showing that TVA’s analysis of the indirect effects, including potential impacts on methane emissions in the gas supply chain, was arbitrary or capricious.

3. Rate of Emissions

Sierra Club next argues that TVA obscured the magnitude of the Aero CTs Project’s impact by omitting discussion of the project’s total emissions and focusing instead on the rate of emissions. (Doc. No. 53-1 at PageID # 905). Sierra Club contends that the EA estimated that the project could emit more than 1.1 million tons of CO₂e from gas combustion every year, but failed

to disclose how long it expects the Aero CTs Project to operate.⁹ (Doc. No. 53-1 at PageID # 905 (citing AR 203)). Sierra Club contends that TVA is required to consider the project's total emissions over time and that "disclosing the yearly rate by itself does not paint the whole picture" of potential climate impacts. (*Id.*).

In response, TVA argues that it adequately analyzed the Aero CTs Project's total emissions over time and provided an overall assessment of total emissions by applying two complementary methodologies to quantify the impacts from the operational greenhouse gas emissions from the project: (1) a proxy analysis showing that total greenhouse gas emissions from the project would be minor when compared to total statewide, regional, national, and global emissions; and (2) social carbon methodology based on modeling for the entire TVA power system that included anticipated generation and carbon emissions for the proposed alternative over a 20 year period. (Doc. No. 55 at PageID # 977-978 (citing AR 204-05)). TVA contends that modeling the emissions for the Aero CTs Project over a 20-year timeframe is consistent with the planning strategy in the 2019 IRP and EIS from which the EA tiers, and notes that the 2019 IRP and EIS provide a complete picture of the emissions from the Aero CTs Project and how it fits into TVA's broader system . (Doc. No. 55 at PageID # 978-79). TVA asserts the EA's estimate of annual emissions satisfies the NEPA requirement to take a "hard look" at the overall impacts of greenhouse gas emissions from the Aero CTs Project. (Doc. No. 55 at PageID # 978).

The Court agrees. TVA's consideration of the total annual amount of greenhouse gas emissions, particularly when considered in conjunction with analysis of overall TVA emissions

⁹ CO₂e refers to carbon dioxide equivalent. It is a unit of measurement used to compare the emissions of various greenhouse gasses. See Terms & Acronyms, United States Environmental Protection Agency, https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/termsearch.do?search=&term=carbon%20dioxide%20equivalent&matchCriteria=Contains&checkedAcronym=true&checkedTerm=true&hasDefinitions=false (last visited Sept. 30, 2024).

over a 20-year period, fulfills its NEPA obligations. Sierra Club fails to demonstrate that TVA’s methodologies regarding the amount of emissions were arbitrary or capricious or that TVA failed to take a “hard look” at the total emissions from the proposed Aero CTs Project.

C. TVA’s Methodologies

Sierra Club next argues that TVA incorrectly determined that the Aero CTs Project would not have significant climate impacts by relying on a discredited proxy analysis that compared the Aero CTs Project’s greenhouse gas emissions to state, national, and global gas emissions to assess the project’s impact on climate change. (Doc. No. 53-1 at PageID # 906). Sierra Club takes issue with this proxy analysis and argues that it is not a sufficient basis to determine that climate impacts from the project would be insignificant. (*Id.*). Sierra Club points to guidance from the Council on Environmental Quality stating that “[a]gencies should not limit themselves to calculating a proposed action’s emissions as a percentage of sector, nationwide, or global emissions in deciding whether or to what extent to consider climate change impacts under NEPA.” (Doc. No. 53-1 at PageID # 909 (citing AR 4998 (CEQ 2016 Climate Guidance))). Sierra Club contends that “[s]imply comparing the Aero CTs Project’s greenhouse gas emissions to state, national, and global emissions did not meaningfully inform the public about the climate impacts of the Project or provide any science-based criteria, supported by evidence in the record, to conclude that those impacts will be insignificant.” (*Id.*).

In response, TVA argues that the EA contained extensive analyses of the potential climate change impacts of greenhouse gas emissions from the Aero CTs Project. (Doc. No. 55 at PageID # 970). TVA again points to the two methodologies used in the EA—the proxy method and the social cost of carbon. (Doc. No. 55 at PageID # 970 (citing AR 202-08)). TVA argues that “[c]ontrary to Sierra Club’s suggestion (Doc. 1 at PageID # 21), courts have acknowledged the

inability of current climate science to directly connect [greenhouse gas] emissions from specific agency actions to global climate impacts and have approved” proxy analysis. (Doc. No. 52 at PageID # 859). TVA also explains that “[b]ecause GHG emissions from the proposed project would mix in the atmosphere with other emissions sources, TVA cannot delineate any specific local environmental impacts from the project’s incremental GHG emissions” and “[t]he only relevant measure of [greenhouse gas] impacts from the proposed project therefore is its contribution to system-wide [greenhouse gas] reduction.” (Doc. No. 52 at PageID # 860).

TVA also describes its analysis of the social cost of carbon and explains that this methodology is “one method among many that attempts to quantify or monetize the economic benefits and costs of [greenhouse gas] emissions from proposed projects” and does not “measure the actual incremental impacts of an individual project or include all potentially significant impacts” or “account for the fact that the Aero CT units would support TVA’s system-wide addition of renewables consistent with the 2019 IRP and TVA’s Strategic Intent and Guiding Principles.” (Doc. No. 52 at PageID # 861). TVA maintains that NEPA does not mandate a cost-benefit analysis but, nevertheless, TVA conducted a social cost of carbon analysis using two different valuations. (Doc. No. 52 at PageID # 861; AR Doc. 2 at 205). Accordingly, TVA argues that its methodologies were sufficient and complied with NEPA.

When reviewing claims under NEPA, which are often highly technical, courts should not act as ‘omnipotent scientists’” and “when analysis of the relevant documents requires a ‘high level of technical expertise, courts are at their ‘most deferential.’” *Oak Ridge Env’t Peace Alliance v. Perry*, 412 F. Supp. 3d 786, 808 (E.D. Tenn. 2019) (internal citations omitted); *Coal. for Advancement of Reg’l Transp. v. Fed. Highway Admin.*, 576 F. App’x 477, 488 (6th Cir. 2014) (noting that decisions invoking a high level of an agency’s technical expertise “is properly left to

the informed discretion of the responsible federal agencies” and that “[a]bsent a showing of arbitrary action, we must assume that the agencies have exercised this discretion appropriately.”). However, the deference to TVA is “‘not unlimited,’ and ‘deference is not owed if ‘the agency has completely failed to address some factor consideration of which was essential to making an informed decision[.]’” *Oak Ridge*, 412 F. Supp. 3d at 808 (internal citations omitted).

Here, Sierra Club’s challenge to TVA’s methodologies involves a highly technical analysis and, accordingly, the Court defers to TVA’s technical expertise. The EA provides robust and thorough analyses of the proxy and social cost of carbon methodologies. Moreover, while TVA was not required to consider the social cost of carbon analysis, it considered this methodology and provided a detailed explanation of its analysis. (AR 204-08). The administrative record demonstrates that TVA adequately considered the potential climate impacts of the Aero CTs Project and analyzed the potential impacts to make a fully informed and well-considered decision, as required by NEPA.

D. Cumulative Impact

NEPA requires TVA to assess the incremental effects of the Aero CTs Project “when added to the effects of other past, present, and reasonably foreseeable actions” undertaken by TVA, any other agency, and any person. 40 C.F.R. § 1508.1(g)(3) (2022); *Ky. Riverkeeper v. Rowlette*, 714 F.3d 402, 408 (6th Cir. 2013). Sierra Club argues TVA did not appropriately consider the cumulative effects of greenhouse gas emissions from the Aero CTs Project because TVA considered only its own actions in the vicinity of the Johnsonville Aero CT Project Area and did not include projects outside of the vicinity as part of its analysis, including other “contemporaneous actions.” (Doc. No. 54 at 15 (citing AR 314). Specifically, Sierra Club argues TVA should have considered two new gas fired plants TVA approved in Alabama and Kentucky and two it was

“actively considering” in Cumberland City and Kingston, Tennessee. (*Id.* at 15-16 (citing AR 3193; AR 3395; 86 Fed. Reg. 31,780 (Jun. 15, 2021) (EIS for Kingston, Tenn. Fossil Plant Retirement)).

TVA argues that its analysis of cumulative impacts met the requirements of NEPA because it considered cumulative impact of system-wide projects in the 2019 IRP, which “estimated average TVA system-wide emissions under the Target Mix,” incorporated by reference the project-specific environmental analyses for the other gas plants, and captured systemwide greenhouse gas emissions from the SCC analysis. (Doc. No. 52 at 22 (citing AR 1095); Doc. No. 58 at 5 (citing AR 172, 190-91, 205-08)). TVA also points to its consideration that the retired Johnsonville CT units would be replaced by TVA’s Paradise and Colbert CT facilities and its incorporation of the EA related to that project. (Doc. No. 52 at 22 (citing AR 172, 190) (noting that potential impacts from the Paradise and Colbert CT facilities was assessed in an earlier NEPA document completed in June 2021)).

Sierra Club points to two out-of-circuit cases in which an EA was deemed to insufficiently consider cumulative impacts. In *WildEarth Guardians v. Bureau of Land Management*, 457 F. Supp. 3d 880, 891-95 (D. Mont. 2020), the court held that the EA violated NEPA because it did not consider cumulative greenhouse gas emissions from agency’s oil-and-gas lease sales in combination even though they were part of the same lease sale. In a separate case brought by the WildEarth Guardians, a different district court found the EA violated NEPA because it did not examine greenhouse gas emissions from the agency’s other reasonably foreseeable oil-and-gas lease sales in the region and nation. *WildEarth Guardians v. Bernhardt*, 502 F. Supp. 3d 237, 247-51 (D.D.C. 2020). Notably, in that case, the court found that the defendant failed to consistently apply its own internal benchmark for determining what actions are reasonably foreseeable. *Id.* at

250. Neither of these cases speaks to the circumstances here, where TVA addresses the cumulative impact of system-wide projects in the 2019 IRP and the project-specific environmental analyses for the other gas plants by incorporating the environmental assessments for these projects by reference in the EA.

Sierra Club argues TVA cannot rely on the estimates in the 2019 IRP because they have too much variability to be informative. (Doc. No. 54 at PageID # 947). Sierra Club points out that that the 2019 IRP did not select specific projects, only a “broad menu of options” which included over 400 million tons of variability. (*Id.*). Sierra Club accuses TVA of trying to have its cake and eat it too, by relying on the alleged system-wide benefits of the Target Supply Power Mix from the 2019 IRP, while at the same time excluding other gas plants that are part of the same system from its cumulative analysis. (*Id.* at PageID # 947-48).

The EA satisfies the requirements of NEPA because it provided a detailed estimate of annual emissions per year of the Aero CT Project (*see* AR 196), which specifically considered and incorporated the cumulative effects of other projects in the region, incorporated by reference environmental assessments of the contemporaneous projects, and considered the effects of anticipated TVA projects in the 2019 IRP. NEPA does not require more.

E. Consideration of Alternatives

NEPA requires the TVA to consider “a reasonable range of alternatives to the proposed agency action, including an analysis of any negative environmental impacts of not implementing the proposed agency action in the case of a no action alternative, that are technically and economically feasible, and meet the purpose and need of the proposal.” 42 U.S.C. § 4334(C)(iii); *see also*, 40 C.F.R. § 1505.5(c) (2020) (stating that the EA must “[b]riefly discuss the purpose and need for the proposed action, alternatives as required by section 102(2)(E) of NEPA, and the

environmental impacts of the proposed action and alternatives.”) 40 C.F.R. § 1501.5(c) (2020). Agencies have “wide discretion to choose the alternatives to evaluate in light of the project’s purpose and environmental impacts,” especially “when an agency decides to prepare only an environmental assessment.” *Klein v. U.S. Dep’t of Energy*, 753 F.3d 576, 582 (6th Cir. 2014).

Because only alternatives that accomplish the purpose of the proposed action require detailed consideration, how the agency defines the purpose of the proposed action sets the contours for its exploration of available alternatives. *Webster v. U.S. Dep’t of Agric.*, 685 F.3d 411, 422 (4th Cir. 2012) (citing *Wyoming v. U.S. Dep’t of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011)); *see also, Little Traverse Lake Prop. Owners Ass’n v. Nat’l Park Serv.*, 883 F.3d 644, 655 (6th Cir. 2018) (explaining that the range of alternatives an agency must consider is measured against the agency’s statement of the purpose and the need for action).

“Agencies enjoy considerable discretion in defining the purpose and needs for their proposed actions, provided that they are reasonable.” *Coal. for Advancement of Reg’l Transp. v. Fed. Highway Admin.*, 576 F. App’x 477, 487 (6th Cir. 2014) (citing *Webster*, 685 F.3d at 422). But an agency “may not ‘define [a] project so narrowly that it foreclose[s] reasonable consideration of alternatives.’” *Little Traverse Lake*, 883 F.3d 656 (quoting *Utah Env’t Cong. v. Bosworth*, 439 F.3d 1184, 1195 (10th Cir. 2006)). And the EA must provide an appropriate explanation for why an alternative was eliminated. 18 C.F.R. § 1318.302(c).

1. Project Purpose and Needs

The EA for the Aero CT Project states that the purpose and need of the proposed action was to modernize TVA’s peaking fleet to assist in the integration of intermittent renewable sources and provide TVA with dependable year-round capacity, as set forth in the 2019 IRP and CT Study. (Doc. No. 52 at 25 (citing AR 170–71)). TVA explained that the purpose and need of this project

was the result of a lengthy and detailed programmatic resource planning process that resulted in the 2019 IRP to which the EA tiered. (Doc. No. 55 at PageID # 984). The 2019 IRP specifically identified Aero CT units as being particularly well-suited to enhance TVA’s system flexibility because they are highly efficient peaking units capable of operating intermittently during short-duration, high-demand periods. (*Id.* (citing AR 621, 671, 741–42, 753, 823–25; *see also*, AR 170, 294)). The Target Mix recommended by the 2019 IRP included the addition of up to 5,200 megawatts of CTs by 2028 to meet peaking needs. (AR 621).

Sierra Club argues TVA defined the project’s purpose and needs “unreasonably narrow[ly]” to favor only the proposed project and failed to consider carbon-free alternatives such as solar power combined with battery storage and demand response programs (Doc. No. 53-1 at PageID # 912-13). Sierra Club argues that if TVA relies on the 2019 IRP to define the purpose and needs of this project, TVA was required to evaluate “reasonable alternatives from the menu of options within the guideline ranges of the Target Power Supply Mix” before committing to specific projects within the “range of choices the 2019 IRP left open.” (Doc. No. 54 at PageID 949-50). Sierra Club notes that solar with battery storage was among the menu of options in the Target Mix and that, like Aero CTs, the solar/battery storage combination was deemed to have flexibility benefits. (*Id.* at PageID # 950-51 (citing AR 813)).

Sierra Club also contends TVA impermissibly relied on the CT Modernization Study to satisfy the requirement to consider alternatives and constrained the purpose and needs of the project to what the CT Modernization Study recommended—building Aero CT units. Sierra Club acknowledges that a project specific NEPA review may rely on a broader NEPA review of an overall program or plan of action through what is known as “tiering,” but argues that the EA cannot tier to the CT Modernization Study because the CT Modernization Study was not itself subject to

NEPA. (Doc. No. 53-1 at 26 (citing *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1073 (9th Cir. 2002) (“tiering to a document that has not itself been subject to NEPA review is not permitted, for it circumvents the purpose of NEPA”)).

It is true that the EA mentions the CT Modernization Study in the section discussing project and purpose, but TVA argues that the EA only tiered to the 2019 IRP, not the CT Modernization Study. The Court finds the EA reasonably tiered to the IRP. Not only did the 2019 IRP set specific short-term goals for Aero CT expansion, it explained that flexibility and reliability, such as that provided by Aero CTs, was necessary for expansion of renewable resources. Even if the EA did express a narrow statement of purpose and needs that was providing more Aero CT units, this narrow purpose is supported by the IRP, which considered a broad range of alternatives for an energy plan that meets the agency’s primary objectives.

Sierra Club’s argument that TVA was required to re-evaluate its options from the Target Mix menu is without merit. The 2019 IRP thoroughly evaluated the energy sources, even providing “more specific direction” for how to meet TVA future needs over the next ten years that included the addition of Aero CTs. The fact that the Target Mix provided ranges within which TVA could act does not require reevaluation of allocation of resources at every turn, particularly here, where the need for Aero CTs is well-established in the IRP. TVA’s reliance on the 2019 IRP, which thoroughly evaluated various sources of energy production and storage, to develop the purpose and need of the proposed action was reasonable and neither arbitrary nor capricious.

2. Alternatives

The EA considered two alternatives—a no action alternative (Alternative A) and an alternative to construct and operate 10 natural gas-fired Aero CTs at the Johnsonville Reservation (Alternative B). (Doc. No. 52 at 10 (citing AR Doc. 2 at 177)). The EA considered, but did not

evaluate, carbon-free options such as solar power with supporting battery storage. The EA acknowledged that both battery storage and Aero CTs can “contribute to system flexibility” and battery benefits may be higher in “shoulder months (where there is potential for excess solar generation during periods of lower loads).” (AR 295-96). But Aero CT unit have more benefits during peak months because they can run for more sequential hours during high loads and they are less expensive than battery storage, and, importantly, they generate electricity while battery storage can only store power generated by other sources. (*Id.*). Ultimately, TVA determined that the cost-value for solar power with battery storage was not feasible, in part because “batteries are more expensive and limited in the duration of energy storage.” (AR 294-96; *see also*, AR 746, 801-10).

Sierra Club acknowledges this explanation but argues that the EA nevertheless failed to evaluate a reasonable range of alternatives because it rejected viable carbon-free alternative based on a series of factual and legal errors. First, Sierra Club argues that TVA eliminated battery storage as too expensive an option based on the capital cost of installation rather than the operational cost, which is lower than Aero CTs. (Doc. No. 53-1 at PageID # 914). In response, TVA correctly points out that cost was only one of the reasons it did not consider battery storage a viable alternative. Aside from the higher upfront cost, battery storage provides only limited capacity and does not itself generate electricity. (Doc. No. 55 at PageID # 987-88 (citing AR 294-97). Even if TVA eliminated battery storage as alternative based solely on the high installation cost, the decision was not an abuse of discretion.

Next, Sierra Club argues the TVA violated NEPA because it did not consider the carbon-free alternative proposed by Sierra Club which was a specific combination of solar, battery storage, and demand response. (Doc. No. 53-1 at PageID # 917). Sierra Club argues it is not enough for TVA to consider and reject each of these alternative standing alone, it must specifically consider

whether the combination of these three technologies would be feasible or would meet the purpose and need of the project. (*Id.*; *see also*, Doc. No. 54 at PageID # 952). It contends TVA’s failure to consider the specific combination proposed was arbitrary, capricious, and an abuse of discretion.

In support of this argument, Sierra Club leans heavily on the Sixth Circuit’s decision in *Meister v. Dep’t of Agric.*, 623 F.3d 363, 377 (6th Cir. 2010). *Meister* involved a dispute about the land management plan for national forests in Northern Michigan. *Id.* at 367. The Forest Service treated a proposal to close a very small portion of the forests to snowmobiling and hunting with guns as a proposal for a complete ban on all hunting of any kind in the forests. *Id.* at 377-78. The Sixth Circuit held the Forest Service violated NEPA because it “treated [the] proposed restriction on hunting as something it obviously is not.” *Id.* at 377. Sierra Club argues TVA’s failure to consider the specific combination its proposed—solar, batter storage, and demand response—is “on all fours” with the Forest Service’s actions in *Meister*.

The Court disagrees. In *Meister*, the Forest Service evaluated and rejected a proposal that was entirely different than the more narrow one presented. Here, TVA explained why it did not consider battery and solar as a viable alternative in the EA and also relied upon the IRP’s more complete discussion of alternative combinations, including solar, storage, and demand response. It was not arbitrary, capricious, or an abuse of discretion for TVA to decline to include the specific combination of battery storage, solar, and demand response as an alternative in the EA. *See City of Crossgate v. U.S. Dept. of Vet. Affairs*, 526 F.Supp.3d 239, 259 (W.D. Ky. 2021) (cleaned up) (“[I]t is not the Court’s role to examine the substantive basis on which the agency rested its decision to reject a potential alternative, rather it is enough that the record clearly indicates that the agency took the proposed alternative into account and gave plausible reasons for rejecting it.”).

F. Executive Orders

Sierra Club argues one of the “relevant factors” TVA was required to consider in its “hard look at the environmental consequences” was “government policy set out in executive orders [14,008 and 14,057] requiring that federal agencies work to decarbonize power plants by 2035.” (Doc. No. 53-1 at PageID # 918). Sierra Club claims TVA, as a federal agency, must comply with the foregoing executive orders. (Doc. No. 53-1 at PageID # 919). Sierra Club also claims these executive orders created a “2035 decarbonization deadline.” (*See id.*). While Sierra Club concedes that the EA addresses the executive orders 14,008 and 14,057, it submits that the TVA was arbitrary and capricious because the EA did not examine whether the Aero CTs Project could meet the 2035 decarbonization deadline by mitigating its greenhouse gas emissions. (*See Doc. No. 53-1 at PageID # 918-19; see id. at PageID # 921 (“To satisfy NEPA’s ‘hard look’ requirement for the Aero CTs Project, TVA must consider emissions mitigation technology that will allow the Project to meet the 2035 decarbonization deadline or explain why it cannot.”)).*

TVA argues the EA’s consideration of the current administration’s climate goals outlined in executive orders 14,008 and 14,057 is appropriate and adequate to comply with NEPA. (*See Doc. No. 55 at PageID # 989-92*). TVA contends it “is encouraged to develop, implement, and participate in plans that are consistent with [executive orders 14057 and 14008], but it is not mandated to do so.” (Doc. No. 55 at PageID # 989 (citing Exec. Order No. 14057, 86 Fed. Reg. 7,0935, 7,0939-40 (Dec. 8, 2021) (encouraging independent agencies under Section 503(d) to implement policies, goals, and provisions of EO 14057, while creating mandatory obligations for principal agencies, which does not include TVA, under Section 503(c)). TVA asserts that, despite not having a mandatory obligation to develop, implement, and participate in plans that are consistent with executive orders 14057 and 14008, the EA “considered policy goals articulated in

the EOs, including on climate change, explaining how TVA planned to accomplish them.” (Doc. No. 55 at PageID # 989 (citing AR 201, 261, 291-93)).

In its reply, Sierra Club submits that the EA provides “non-committal gestures” rather than plans to accomplish the policy goals set forth in the executive orders. (Doc. No. 57 at PageID # 1003-04 (citing AR 000201 (EA) (Executive Order 14008 targets “a carbon-free electricity sector by 2035” and AR 000202 (EA) (TVA has “a path to approximately 80 percent carbon reduction by 2035, and aspirations for net-zero carbon emissions by 2050”)). However, Sierra Club does not rebut TVA’s argument that it is not required to develop, implement, and participate in plans that are consistent with Executive Order Nos. 14057 and 14008. (See Doc. No. 57 at PageID # 1003-04).¹⁰

As the executive orders did not impose a mandatory obligation on TVA, the Court finds that Sierra Club has failed to demonstrate that TVA was arbitrary and capricious in its consideration of the environmental consequences of the Aero CTs Project based on these executive orders.

G. Environmental Impact Statement

Sierra Club claims TVA violated NEPA because it did not prepare an environmental impact statement for the Aero CTs Project. (Doc. No. 53 at PageID # 879). An agency must prepare an EIS where the proposed action “has a reasonably foreseeable significant effect on the quality of the human environment.” 42 U.S.C. § 4336(b)(1). Sierra Club argues that the alleged deficiencies discussed above “obscured the full environmental consequence of the Aero CTs project” and

¹⁰ Instead, Sierra Club raises a new argument: that “*this* EA was required to take a hard look at mitigation – irrespective of whether TVA can be forced to implement it – because the Executive Orders make strategies to decarbonize power plants by 2035 an important aspect of the problem.” (Doc. No. 57 at PageID # 1004 (emphasis in original)). The Court declines to consider Sierra Club’s argument raised for the first time in its reply brief.

resulted in an erroneous finding of no significant impact. (Doc. No. 53-1 at PageID # 921-22). Sierra Club also contends that the Aero CTs Project will have a reasonably foreseeable significant impact because it will emit more than one million tons of carbon dioxide equivalent each year for decades. (Doc. No. 53-1 at PageID # 922).

TVA argues it reasonably determined, based on its analysis of the relevant foreseeable impacts of the proposed Aero CTs Project, that the Project would not have significant impacts and that, therefore, an EIS was not required. (Doc. No. 55 at PageID # 992). In support, TVA submits that the EA showed that greenhouse gas emissions from the proposed Project, when compared to the emissions from the other reasonably foreseeable future actions in the vicinity, would not have a significant cumulative effect. (*See id.*). Rather, TVA contends the proposed Project would contribute to a net decrease in systemwide greenhouse gas emissions. (*Id.* (citing its memorandum supporting its cross motion for summary judgment, Doc. No. 52 at PageID # 850-54 and AR Doc. 2 at 203-06)).¹¹ Sierra Club filed a reply in support of its motion for summary judgment, (Doc. No. 57), but did not respond to TVA's arguments on the EIS issue.

The Court has already determined that TVA took a hard look at the potential climate impacts of the Aero CTs Project and that the EA complies with the requirements of NEPA. For these same reasons, TVA's finding of no significant impact for the Aero CTs project is reasonable and neither arbitrary or capricious.

¹¹ TVA also argues the Project cannot be reasonably construed as having "significant" impacts because the impacts associated with the proposed Project are not highly controversial and because the project does not establish a precedent for future agency action. (*Id.*). In its response in opposition to TVA's motion for summary judgment, Sierra Club claims TVA cannot rely on arguments the Aero CTs Project will not have "highly controversial" impacts or that it will not "establish precedent for future agency actions" at summary judgment because TVA did not rely on those factors at the time it determined it didn't need to prepare an ESI. (*See Doc. No. 54 at PageID # 953-55*). In its reply, TVA argues it *did* consider these factors in the EA. (Doc. No. 58 at PageID # 1013 n. 3).

IV. CONCLUSION

For the reasons stated, the Court finds that TVA adequately studied the potential climate impacts of the Aero CTs Project and that TVA's finding of no significant impact, while perhaps not the conclusion Sierra Club prefers, does not reach the high bar of arbitrary and capricious decision-making necessary for the Court to find TVA's decision for the Johnsonville Aero CTs violates NEPA. Accordingly, Sierra Club's motion for summary judgment will be **DENIED**, and TVA's motion for summary judgment will be **GRANTED**.

An appropriate Order shall enter.



WILLIAM L. CAMPBELL, JR.
CHIEF UNITED STATES DISTRICT JUDGE